

HELMINTHOLOGICAL ABSTRACTS

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112—Agricultural Gazette of New South Wales.

- a. BELSCHNER, H. G.—“Present day knowledge of worms in sheep.” XLV (6), 307-310. [1934.]
- b. MURPHY, W. J. B.—“Blackhead in turkeys.” XLV (9), 523-527. [1934.]

(a) Belschner gives a general account of worms in sheep, their harmful nature, and the principles of control. The article is to be continued. B.G.P.

(b) In considering blackhead of turkeys in all its aspects, Murphy stresses the importance of the association between the disease and *Heterakis gallinae*, the caecal worm. The causative organism of blackhead, *Histomonas meleagridis* is probably introduced into turkeys by this nematode. P.A.C.

113—Állatorvosi Lapok.

- a. KOTLÁN, S. & VAJDA, T.—“Strongyloides-tanulmányok.” [Strongyloides studies.] LVII (14), 198-205. [1934.]

(a) Kotlán and Vajda consider the Strongyloides of pigs in Hungary to be *S. ransomi*, although there are slight variations from the American forms. The life-history is usually direct in young pigs, mixed in older pigs, and approaches the purely indirect type in infections of long standing. Finally an age immunity appears to supervene. Slight and transient infections with this species can be given to man, dog, cat and rabbit. The authors consider that heavy infections in young pigs may be of serious pathological importance.

B.G.P.

114—American Journal of Hygiene.

- a. MCCOY, O. R.—“The effect of vitamin A deficiency on the resistance of rats to infection with *Trichinella spiralis*.” XX (1), 169-180. [1934.]
- b. FOSTER, A. O. & LANDSBERG, J. W.—“The nature and cause of hookworm anaemia.” XX (2), 259-290. [1934.]
- c. RHOADS, C. P., CASTLE, W. B., PAYNE, G. C. & LAWSON, H. A.—“Hookworm anaemia: etiology and treatment with especial reference to iron.” XX (2), 291-306. [1934.]
- d. KELLER, A. E.—“A comparison of the efficiency of the Stoll egg-counting technique with the simple smear method in the diagnosis of hookworm.” XX (2), 307-316. [1934.]
- e. SCHWARTZ, B. & ALICATA, J. E.—“Development of the human hookworm, *Necator americanus*, in guinea-pigs.” XX (2), 317-328. [1934.]
- f. GRAHAM, G. L.—“Resistance studies with the nematode, *Nippostrongylus muris*, in laboratory rats.” XX (2), 352-372. [1934.]
- g. BACHMAN, G. W., MOLINA, R. R. & GONZALEZ, J. O.—“Anomalous and non-specific reactions with *Trichinella spiralis* antigen in relation to other disease conditions.” XX (2), 415-423. [1934.]
- h. MILLER, (jr.) H. M. & GARDINER, M. L.—“Further studies on passive immunity to a metazoan parasite, *Cysticercus fasciolaris*.” XX (2), 424-431. [1934.]

(a) McCoy has shown that when young albino rats aged about 25 days, are placed on a diet deficient in vitamin A, their resistance to infection with *Trichinella spiralis* is very noticeably lowered. This is obvious when infestation occurs after as short a period as 2 weeks after first feeding the deficient diet.

The lowering of the resistance is shown in the fact that adults persist in the intestine while very much larger numbers of larvae than normal migrate and settle down in the muscles. No immunity to a second infection is developed in the deficient-fed rats. These conditions are much less well marked in older rats.

P.A.C.

(b) Hookworm anaemia is typically "microcytic hypochromic" such as is usually associated with chronic haemorrhage. It is unnecessary to postulate the absorption of a verminous "toxin" for experimental infestation of dogs does not result in haemopoietic failure.

R.T.L.

(c) Hookworm anaemia in Puerto Rico is apparently the result of blood loss, dietary deficiency and gastro intestinal changes. The removal of the worms alone has very little effect while rapid improvement follows on the administration of iron in large doses, whether the worms are removed or no.

R.T.L.

(d) The dilution egg-counting technique is more accurate than the simple smear method in the diagnosis of hookworm. The greatest discrepancy occurs in the lowest intensity groups. When the intensity reached 2,000 eggs per gramme of faeces 95.1 per cent. of all the specimens found positive by egg-count were also positive by smear. At 5,000 eggs per gramme all were positive by both methods. A correlation may be possible between the two techniques.

R.T.L.

(e) Irrespective of the path of entry *Necator* larvae reach the lung before the intestine when administered to guinea-pigs.

The third stage is approaching completion in the lung. The larvae collected from the intestine are at the fourth stage. From 14 to 16 days after infection the forms in the intestine show unmistakable sex differentiation. The lung lesions are most marked during the first week and tend to fade out during the second week after infection.

R.T.L.

(f) The heavier the initial worm burden with *Nippostrongylus muris* the greater the resistance developed in the Norwegian rat. This resistance is initiated by comparatively light infections. Repeated exposures to increased numbers at weekly intervals is followed by a marked resistance. "Physiological crowding" did not occur.

R.T.L.

(g) Although Trichiniasis is unknown in man or pigs in Puerto Rico 4.8 per cent. of the precipitin tests done on natives reveal an anomalous precipitation reaction when antigens from various worm proteins were used. These can be easily differentiated from true precipitation rings. The non-specific precipitation reactions occur in low dilutions at the interphase of the serum and test-antigen where there is nitrogen-retention and increased cholesterol and chlorides in the blood. A titre of over 2,500 in terms of dry powder can be termed specific for trichiniasis in 90 per cent. of cases. R.T.L.

(h) Rats can be immunized actively against the oncospheres of *Taenia taeniaeformis* and can be protected by passive transfer of serum from immune animals. Immune serum can inhibit early infections if administered within 10 days. Some direct relation subsists between the degree of infection in the donor and the protective power of the serum.

R.T.L.

115—American Journal of Medical Science.

- a. FRIEDLANDER, R. D.—“The present status of the diagnostic intradermal test for human trichiniasis.” CLXXXVIII (1), 121-123. [1934.]

(a) Friedlander is of the opinion that the intradermal test is a very valuable assistance in the diagnosis of trichinosis. He thereby disagrees with Kilduffe who affirmed that it had no advantages over the demonstration of eosinophilia. Friedlander points out that eosinophilia is not confined to trichinosis but is present in many parasitic and allergic conditions. P.A.C.

116—American Journal of Tropical Medicine.

- a. KENDRICK, J. F.—“The length of life and the rate of loss of the hookworms, *Ancylostoma duodenale* and *Necator americanus*.” XIV (5), 363-379. [1934.]
b. LAMSON, P. D., BROWN, H. W. & HARWOOD, P. D.—“The anthelmintic properties of certain alkyl phenols.” XIV (5), 467-478. [1934.]

(a) By experimental cutaneous infections with *Ancylostoma* and *Necator* larvae in human volunteers Kendrick has shown that ova appeared in the stools about 53 days after infection. The peak was reached in from 12 to 18 months followed by a decline of 50 per cent. to 70 per cent. within 3 to 6 months. *Ancylostoma* ova disappeared on the average in 76 months, the maximum period being 81 months. *Necator* ova were present at least 64 months. Repeated attempts to establish *Necator* infections by the oral route failed completely.

R.T.L.

(b) In an attempt to find an ascaricide which did not possess the disagreeable properties of hexylresorcinol Lamson and his co-workers prepared ortho- and para-alkyl-phenols, 4-alkyl resorcinols and 6-alkyl m-cresols. Experiments *in vitro* with ascaris showed that in each of the above series of compounds, those with alkyl side chains of 4 to 7 carbon atoms were active, while the lower and higher members were relatively inactive. Their toxicity, when ingested by rats, showed a gradual decrease from the lower to the higher alkyl derivatives. Experiments *in vivo* have so far been confined to ortho-heptyl-phenol and hexyl-meta-cresol, neither of which was so effective an ascaricide as hexylresorcinol.

R.H.H.

117—Anales del Instituto de Biología.

- a. CABALLERO, E. & SOKOLOFF, D.—“Segunda contribución al conocimiento de la parasitología de *Rana montezumae* con un resumen descripción de una nueva especie y clave del género *Haematoloechus*.” V (1), 5-40. [1934.]
b. CABALLERO, E. & SOKOLOFF, D.—“Un nuevo trematodo anfitrión parásito del intestino de una tortuga de agua dulce *Dermatemys mawii* Gray, *Schizamphistomoides tabascensis*, n. sp.” V (1), 41-44. [1934.]

(a) Caballero and Sokoloff here review the genus *Haematoloechus* (syn. *Pneumonoeces*), giving descriptions of 21 species and adding *H. elongatus* n. sp.

from the lungs of *Rana montezumae*. They suppress *Ostiolum*, transferring its species to *Haematoloechus*. The paper is fully illustrated and there is a key to the species. B.G.P.

(b) *Schizamphistomoides tabascensis* n. sp. from the fresh-water turtle *Dermatemys mawii* is described and figured by Caballero and Sokoloff. They quote Stunkard's (written) opinion that the amphistome was closely related to *Allassostoma magnum*, but they found its characteristics more in accord with *Schizamphistomoides*. B.G.P.

118—Annales de Parasitologie Humaine et Comparée.

- a. SKARBILOVITCH, T. S.—“ Sur la faune des *Trichostrongylidae* des chauves-souris.” XII (5), 350-361. [1934.]
- b. SKRJABIN, K. I.—“ *Aprocta semenovi* n. sp. nouveau nématode de l'oeil de l'engoulevent.” XII (5), 362-366. [1934.]
- c. MIRZA, M. B.—“ *Chlamydonema masoodi* n. sp.” XII (5), 367-370. [1934.]
- d. BRUMPT, E., DUVOIR, M. E. & SAINTON, J.—“ Un cas de cénurose humaine dû au *Coenurus serialis* parasite habituel des lapins et des lièvres.” XII (5), 371-383. [1934.]
- e. HENRY, A.—“ Observations sur les anomalies du scolex de *Multiceps serialis* (P. Gervais).” XII (5), 384-389. [1934.]

(a) Skarbilovitch describes *Molinostrongylus skrjabini* n. g., n. sp., a trichostrongyle from a bat. It resembles the species of *Anoplostrongylus* but differs, in the form of the spicules and dorsal ray, from the type *A. paradoxus*. The author therefore transfers the other 5 species of *Anoplostrongylus* to *Molinostrongylus* and gives for the latter a generic diagnosis and a key to the species. *M. alatus* (Ortlepp) is redescribed from new material which differs in dimensions only from Ortlepp's material. B.G.P.

(b) Skrjabin describes *Aprocta semenovi* n. sp. from under the nictitating membrane of the eye of *Caprimulgus europaeus*, gives a generic diagnosis, and a key to the 7 species based on male characters. He also erects *Aproctiana* n. g. to receive *Aprocta meirai* Travassos, 1930. B.G.P.

(c) *Chlamydonema masoodi* n. sp. from the intestine of *Felis chaus* which is here described by Mirza, closely resembles *C. praeputialis* and *C. malayensis* from which it differs, however, in the number, size and arrangement of the caudal papillae. B.G.P.

(d) This paper by Brumpt and his co-workers is a reprint, with some additional figures, of the paper in *Bull. Acad. Méd.* [see Helm. Abs., III, No. 129a]. B.G.P.

(e) Henry remarks that the teratology of cestodes has hitherto paid scant attention to the coenurus of *Multiceps serialis*, which is peculiarly rich in abnormal variations. He here describes and illustrates by photographs a large number of abnormalities in this coenurus such as increase or reduction in number of suckers, double or triple rostellae, hooks of unusual shape or number. Apart from the 6-suckered scolex, which produces a triquetrous strobila, these monsters are not found among adult worms. B.G.P.

119—Annales de la Société Belge de Médecine Tropicale.

- a. D'HOOGE, M.—“ Contribution à l'étude de l'onchocercose humaine dans l'Uélé.” XIV (2), 153-180. [1934.]
- b. BERGHE, L. VAN DEN.—“ L'existence de *Ternidens deminutus* au Katanga.” XIV (2), 189-191. [1934.]

(a) D'Hooghe presents case reports of *Onchocerca volvulus* in 6 Europeans and discusses them from a clinical standpoint. The nodules are commonest on bony prominences, particularly around the pelvic girdle, as in natives. This suggests that their location is not fixed by the point at which the simuliid bites. Pruriginous lesions in 3 cases, and periodic engorgement of the nodules, are alike ascribed to an allergic response to an antigen probably produced at the periodic birth of microfilariae. 4 cases, and also 2 *Loa* cases, gave a positive intradermal reaction with *Onchocerca* antigen.

B.G.P.

(b) On the basis of egg measurements Van den Berghe reports the presence of *Ternidens deminutus* in man in Katanga. Of 204 so-called hookworm cases 8 were pure *Ternidens* and 2 mixed. Treatment of a mixed case with carbon tetrachloride removed the hookworms but no *Ternidens*, so that the large eggs of the latter continued in the faeces.

B.G.P.

120—Annals and Magazine of Natural History.

- a. BAYLIS, H. A.—“Three helminthological notes.” (Ser. 10), xiv (79), 115-121. [1934.]
- b. BAYLIS, H. A.—“Some spirurid nematodes from Queensland.” (Ser. 10), xiv (79), 142-153. [1934.]
- c. AZIM, M. A.—“On the life-history of *Nephrostomum ramosum* Sonsino, 1895. An echinostome parasite from *Ardeola ibis ibis* (Buff-backed Heron).” (Ser. 10), xiv (79), 154-157. [1934.]
- d. HUDSON, J. R.—“Notes on some avian cestodes.” (Ser. 10), xiv (80), 314-318. [1934.]
- e. WITENBERG, G. & ECKMANN, F.—“Notes on *Asymphyldora tincae* (Trematoda).” (Ser. 10), xiv (81), 366-371. [1934.]

(a) Baylis gives grounds for the conclusion that *Cystidicoloides* is a synonym of *Metabronema* and suspects that *Cystidicola impar* (Schneider) from the smelt is merely a synonym of *Cystidicola farionis* from the trout. Sweet's evidence that in Australia there is a distinct species of eyeworm in poultry is considered unsatisfactory and *Oxyspirura parvovum* Sweet is regarded as a synonym of *O. mansonii*. The host of *Heterorchis crumenifer* Baylis, originally reported to be *Protopterus aethiopicus*, is more probably *Clarias mossambicus* or a closely-related fish.

R.T.L.

(b) Baylis redescribes *Protospirura marsupialis* Baylis, 1927 in which the unusual length of the pharynx is the most distinctive character. Three new species also are recorded, viz., *Acuaria (Dispharynx) fieldingi* n. sp. from a “white hawk,” and closely related to *D. laplantei*; *Heliconema brevispiculum* n. sp. from the sharp-nosed eel *Muraenesox cinereus*; and *Thelazia aquilina* n. sp. from the wedge-tailed eagle, *Uroaëtus audax* at Townsville, the white bellied sea-eagle and a brown hawk.

R.T.L.

(c) According to Azim the cercariae of *Nephrostomum ramosum* liberated from *Planorbis boissyi* invade tadpoles through the skin and are found after a few hours in the connective and muscular tissues. The adult host is the common buff-backed heron *Ardeola ibis ibis* which feeds voraciously on fish and tadpoles. The morphology of the cercaria is described.

R.T.L.

(d) Hudson is of the opinion that the genus *Killigrewia* Meggitt, is synonymous with *Aporina* Fuhrmann, and *Raillietina* (Paroniella) *magninumida* Jones, 1930 is synonymous with *R. numida* Fuhrmann. He records two tapeworms from the lesser flamingo: *Hymenolepis phaeniconaiadis* n. sp. and *Amabilia lamelligera*. R.T.L.

(e) Witenberg and Eckmann conclude that the genus *Asymphylogdora* contains only one well defined species, *A. tincae*, the other species are based on anatomical features which are variable and are subject to contraction. R.T.L.

121—Annals of Tropical Medicine and Parasitology.

- a. VAZ, Z.—“*Ackertia* gen. nov. for *Litomosa burgosi* de la Barrera, 1926, with notes on the synonymy and morphological variations of *Litosomoides carinii* (Travassos, 1919).” XXVIII (2), 143-149. [1934.]
- b. ADAMS, A. R. D.—“Studies on bilharzia in Mauritius. I. The experimental infection of *Bulinus* (*Pyrgophysa*) *forskali* with *Schistosoma haematobium*.” XXVIII (2), 195-204. [1934.]

(a) *Litomosa burgosi* de la Barrera, 1926 from *Cavia pamparum* is redescribed and illustrated by Vaz. It is made the type of the new genus *Ackertia* in view of the structure of the buccal capsule and the outline of the ends of the male and female. R.T.L.

(b) Adams has demonstrated experimentally that in Mauritius *Pyrgophysa forskali* is the intermediate host of *Schistosoma haematobium*. These snails strongly attract bilharzia miracidia and quickly succumb to hyperinfection. R.T.L.

122—Arbeiten aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft.

- a. GOFFART, H. “Ueber die Biologie und Bekämpfung des Kartoffelnematoden (*Heterodera schachtii* Schmidt).” XXI (1), 73-108. [1934.]

(a) Goffart discusses the economic importance of “potato sickness” and gives a general account of the morphology and biology of the causal organism *Heterodera schachtii* and methods for its control.

The strain which attacks potatoes will also parasitize tomatoes but no other plants are susceptible. All known varieties of potatoes are attacked. Permanganate of potash was the only chemical substance found to increase the rate of hatching of the larvae, animal oil and chloride of lime gave negative results and tar-derivatives had a retarding action. With the exception of mustard which had a retarding effect the root excretions of immune plants did not influence the hatching of the larvae. Soil treatment with naphthalene, carbon-bisulphide, animal oil and sulphur is not recommended. “Karbolineum” preparations in 5 per cent. solution are partially effective in controlling eelworm. It is suggested that a toxic substance produced in the soil by too frequent cropping with potatoes may be destroyed by this means, but the treatment is unpractical. Three course rotation is recommended as the only practical method of control in small gardens. M.J.T.

123—Archiv für Schiffs- und Tropenhygiene.

- a. MOMMA, K.—“Agglutinative action of normal blood serum on granules in vas deferens of ascarids.” XXXVIII (7), 273-282. [1934.]
- b. LEE, Y.—“Über Askarideninfektion und ihre Bekämpfung.” XXXVIII (9), 390-394. [1934.]

(a) Using the agglutinative action of blood serum, Momma offers serological evidence of the identity of *Ascaris lumbricoides* and *Ascaris suilla*.

He finds that the granules in the vas deferens will absorb a haemagglutinin from normal serum of man, dog, cat and rabbit. Serum so treated by granules from pig ascaris has subsequently shown no reaction when mixed with granules from human ascaris. The converse is also true. It was not possible to distinguish these two species in this way. However, serum treated with granules from either pig or human ascaris, still reacted to granules from *Toxocara mystax*, *T. canis* or *Parascaris equorum*. P.A.C.

(b) Lee discusses the symptomatology and the treatment of ascariasis and mentions Rotylon, a useful new drug.

Symptoms are usually slight consisting mainly of headache, vertigo, gastric disturbances and occasionally some nervous reactions. Santonin is the time-honoured anthelmintic but other drugs have been used against ascaris. He has been very successful with Rotylon, an alkyl-dioxybenzol. It is quick and certain in action and leaves no unpleasant after-effects. P.A.C.

124—Archives of Pathology.

- a. HOBMAIER, M.—“Metamorphosis of *Metastrongylus* larvae and mesenteric lymph glands.” XVII (6), 769-774. [1934.]

(a) That *Metastrongylus* larvae do not enter the portal system but proceed by the mesenteric lymphatics is confirmed. In the course of their migration the embryos produce lesions by dilating and occluding the vessels and disarrange the anatomical structures in the glands. R.T.L.

125—Archivio Italiano di Scienze Mediche Coloniali.

- a. PENSO, G.—“Sulla presenza di *Planorbis boissyi* (Potiez e Michaud, 1838) var. *libica* (v.n. Penso, 1933) in Tripolitania.” XV (2), 112-117. [1934.]
- b. TADDIA, L.—“Esami di feci eseguiti nell'Istituto di Patologia Coloniale di Modena dal giugno 1932 all'ottobre 1933, XII.” XV (2), 122-128. [1934.]
- c. BRUNELLI, P.—“Emetina e tartaro stibato nella cura della bilharziosi vescicale.” XV (3), 180-185. [1934.]

(a) There is a small focus of vesical schistosomiasis in Tripolitania. Penso has had molluscs collected in the locality and the only species present is one that he regards as *Planorbis boissyi*. From slight differences in the shell structure he is led to regard it as a new variety *libica*. It would therefore seem that *P. boissyi* is the intermediary, in this locality, for *Schistosoma haematobium*. This mollusc may be that found in Cirenaica and called by Sturany *P. atticus*. [The date for the new variety is given as 1933, but the article was not published until February, 1934.] B.G.F.

(b) Faecal examinations of 453 persons at the Institute at Modena, over a period of 16 months, revealed 75 per cent. positive for helminthic or protozoal parasites. The commonest helminths were *Trichuris* and *Ascaris*. In only 2 per cent. were hookworm eggs found. B.G.P.

(c) Brunelli reports the successful treatment of 4 cases of vesical schistosomiasis with injections, on alternate days, of 10 mg. Stibional intravenously and 40 mg. emetine hydrochloride intradermally. After 20 days there followed a rest for 10 days and then a repetition of the cure. Vesical instillations of oleum gomenolatum were effective in ameliorating cystitis symptoms. B.G.P.

126—Archivos Uruguayos de Medicina, Cirugía y Especialidades.

- a. GAMINARA, A.—“Tratamiento de las parasitosis intestinales más frecuentes en el Uruguay.” IV (6), 583-593. [1934.]

(a) In Uruguay the principal parasites of man are, says Gaminara, *Taenia saginata*, *Hymenolepis nana*, *Ascaris*, *Trichuris* and *Oxyuris*. He gives details of the drugs he recommends against these helminths. B.G.P.

127—Australian Veterinary Journal.

- a. ROSS, I. C.—“The passage of fluids through the ruminant stomach, II. With observations on the effect of long starvation on anthelmintic efficiency.” X (1), 11-23. [1934.]
- b. BEVERIDGE, W. I. B.—“Foot-rot in sheep. Skin penetration by *Strongyloides* larvae as a predisposing factor.” X (2), 43-51. [1934.]
- c. DRABBLE, J.—“Measles (*Cysticercus ovis*) in sheep in New South Wales.” X (2), 57-59. [1934.]
- d. KAUFAL, G.—“Observations on the development of resistance to *Dictyocaulus filaria*.” X (3), 100-111. [1934.]
- e. ROSS, I. C. & GORDON, H. McL.—“The influence of starvation on anthelmintic efficiency.” X (4), 135-142. [1934.]

(a) Having again studied the influence of starvation on the destination of fluids given to sheep by hand drenching, Ross concludes that contrary to his previously published findings the period of starvation does influence the passage to the abomasum of water administered as a drench. Copper sulphate solution passes to the abomasum in as high a percentage of cases in animals starved for 16 as for 48 hours, and an extension of the period of starvation beyond 16 or 24 hours did not lead to increased anthelmintic efficiency of CuSO_4 against *Haemonchus contortus*. As a vehicle copper sulphate may prove useful in securing the rapid passage of other anthelmintics to the abomasum. R.T.L.

(b) Applications of infective larvae of *Strongyloides papillosus* with a culture of *Bacillus necrophorus* to the interdigital skin of sheep produced foot-rot while the controls remained free when larvae or *B. necrophorus* alone were applied. It is concluded that the larvae provide a portal of entry similar to scarification which also produces foot-rot lesions. R.T.L.

(c) Drabble reports a case of severe infection with *Cysticercus ovis* in a sheep from the State Abattoir at Homebush Bay, N.S.W. Several other instances were seen but the cysts were either too degenerate or too calcified to afford microscopical determination. These changes apparently commence early. R.T.L.

(d) Young lambs exposed experimentally to a first infection with *Dictyocaulus filaria* exhibit remarkable variation in individual susceptibility. Acquired resistance is apparently due partly to age and partly to prior infection. Lambs on a diet so deficient in quality as to lead to cessation of normal growth and even marked loss of weight did not show any notable lowering of resistance to *D. filaria* even after eleven months. Concurrent infection with *Haemonchus contortus* did not render lambs more susceptible either on normal or deficient diets. Lambs under two months old frequently developed resistance to and threw off infection although occasionally individuals succumbed to acute lung-worm disease. After $5\frac{1}{2}$ to 7 months of age lambs showed a much higher resistance to a primary infection. R.T.L.

(e) In a series of controlled experiments no statistically significant difference was found in the efficacy of CuSO_4 and CCl_4 between starved and unstarved groups of lambs. A very high degree of variation in susceptibility to infection was shown in spite of the age and uniformity of the experimental lambs. Both drugs were of greater efficiency against the female worms. R.T.L.

128—Biological Bulletin.

- a. HAMLETT, G. W. D.—“Nema parasites in embryo bats.” LXVI (3), 357-360. [1934.]

(a) Hamlett records the presence of unidentified nematode larvae in embryos of the phyllostomid bat, *Glossophaga soricina soricina*, collected at Arapúa in eastern Matto Grosso.

The parasites were not attached to embryo or membranes but lay free in the extra-embryonic cavities in either the yolk sac or amniotic cavity. The author considers that the probable source of the larvae is the maternal blood stream from which they would make their way through the placental tissues into the cavity of the ovum. No evidence is available to show the ultimate fate of the parasites. 65 per cent. in the series of embryos examined were infected. J.N.O.

129—Bulletin de l'Académie de Médecine.

- a. BRUMPT, E., DUVOIR, M. E. & SAINTON, J.—“Un cas de cénurose humaine dû au *Coenurus serialis*, parasite habituel des lapins et des lièvres.” CXII (26), 58-67. [1934.]

(a) Brumpt, Duvoir and Sainton describe in detail a case of *Coenurus serialis* in a woman. Daughter cysts were present, both external pediculated cysts and internal detached cysts, some of them (like the mother cysts) bearing scolices. Some of the latter have been fed to a dog. Drawings of large and small hooks are given, and compared with those of *C. serialis* from the rabbit. B.G.P.

130—Bulletin de l'Académie Vétérinaire de France.

- a. LAGAILLARDE.—“Contribution à l'étude des helminthiases du cheval.” VII (5), 190-194. [1934.]

(a) From his continuous examination of 200 French Army horses Lagailarde is able to report the presence of strongyles (100 per cent.),

Oxyuris (70 per cent.) and Ascaris (3 per cent.). Colic is an important affection of horses and it is essential that this, and the liability to fatigue, should be reduced to a minimum in army horses. The most satisfactory method of control is anthelmintic treatment given annually in early spring. From one of the case reports cited it appears that the anthelmintic used is terebenthine 60 gm., chloroform 15 gm., and aloes 10 gm. (for a horse of 300 Kg.).

B.G.P.

131—Bulletin of the Japanese Society of Scientific Fisheries.

- a. KATAOKA, N. & MOMMA, K.—“Helminthes from the salmonoid fish, *Plecoglossus altivelis* T. & S.” III (2), 59-64. [1934.]
- b. KATAOKA, N. & MOMMA, K.—“A preliminary note on the life-history of *Proteocephalus neglectus*, with special reference to its intermediate host.” III (3), 125-126. [1934.]

(a) Kataoka and Momma record from *Plecoglossus altivelis*, a salmonoid fish, the following helminth parasites: a trematode resembling *Allocreadium oncorhynchi*, a cestode, *Proteocephalus neglectus*, and a number of nematodes. There were immature encysted females of *Raphidascaris biwakoensis*, *R. plecoglossi* and adults of *R. gigi*. Acanthocephala were represented by *Acanthocephalus aculeatus* and by a male worm which had close affinities with both *Echinorhynchus gadi* and *E. truttae*. They do not, however, make any new species.

P.A.C.

(b) Kataoka and Momma have demonstrated that *Cyclops serrulatus* is an intermediate host of *Proteocephalus neglectus*, a cestode parasite of *Plecoglossus altivelis*. They describe and give measurements of the egg and the procercoid.

P.A.C.

132—Bulletin de la Société Neuchâteloise des Sciences Naturelles.

- a. BAER, J. G.—“L'adaptation des helminthes à leurs hôtes.” LVIII, 57-76. [1934.]

(a) Baer discusses the relation of helminth parasites to their hosts and notes the high degree of specialisation that occurs.

While certain parasites have a wide range, yet it is often found that the parasites of closely allied hosts are themselves closely related. Parasitism seems to be an ancient phenomenon and parasites have developed along with their hosts. He suggests that by studying the distribution of any group of helminths it is often possible to deduce a great deal in the matter of the phylogeny of their hosts. Cestodes are particularly interesting in this respect for they seem to have adopted the parasitic habit very early in the history of the world.

P.A.C.

133—Comptes Rendus de l'Académie des Sciences.

- a. GALLIEN, L.—“Sur le déterminisme de la dualité d'évolution des larves chez *Polystomum integerrimum* Froelich.” CXCIX (3), 229-231. [1934.]

(a) Gallien has confirmed the observations made by Zeller (1872) on the alternative life-cycles of *Polystomum integerrimum*.

When young tadpoles are exposed to infection the polystome becomes a neotenic larva on the gills; when older tadpoles are exposed the polystome

remains in the immature stage which the author calls "Gyrodactyloid," passing to the excretory bladder at the tadpoles' metamorphosis, and growing to a sexual adult in the course of 3 years. Gallien has excluded the possibilities that two species of polystome were involved, that two types of eggs were produced, and that two species of tadpole were involved, by using the progeny of a single polystome on tadpoles of the same species but of different ages. The progeny of neotenic larvae failed to exhibit neoteny when they in turn infected young tadpoles. The dual development probably depends on the fact that blood in the external gills is more easily available and has a different harmonic content from that in the bladder.

B.G.P.

134—Comptes Rendus de la Société de Biologie.

- a. LIÈVRE, H.—"A propos de l'hématophagie des Ascaris." CXVI (26), 1079. [1934.]
- b. LUTZ, A.—"Transmission du *Schistosoma mansoni* dans l'Etat de Minas Geraes (Brésil) par le *Planorbis centimetralis*." CXVI (26), 1149-1150. [1934.]
- c. ALMEIDA, J. L. de—"De l'existence du *Necator americanus* (Stiles, 1902) (Nématode) chez le *Coendu villosus* Cuv. (Rodentia) au Brésil." CXVI (26), 1154-1155. [1934.]

(a) Lièvre has made spectroscopic examinations of the gut contents of *Ascaris* spp. in order to discover if the parasite feeds on the blood of the host. The method was to wash the contents with water and add potash to the fluid when any haemoglobin would be reduced and would give the bands characteristic of haemochromogen. In the cases of *Ascaris lumbricoides*, *A. megalocephala* and *A. suum* no haemochromogen was found but a positive finding is recorded in 75 per cent. of *Toxocara canis* examined.

P.A.C.

(b) Lutz has demonstrated that in the state of Minas Geraes in Brazil, *Planorbis centimetralis* acts as the intermediate host of *Schistosoma mansoni*. He has followed the complete life-cycle and has successfully recovered from white mice the adult schistosome after experimental infections.

P.A.C.

(c) Lins de Almeida has recovered from a porcupine (*Coendu villosus*) in Brazil 15 examples of *Necator americanus*. This is a new host for the species.

P.A.C.

135—Deutsche Tierärztliche Wochenschrift.

- a. WETZEL, R.—"Untersuchungen über den Entwicklungskreis des Taubenbandwurms *Aporina delafondi* (Railliet, 1892)." XLII (31), 500-502. [1934.]
- b. WETZEL, R.—"Zur Ernährung und pathogenen Wirkung der Oesophagostomen." XLII (37), 602-603. [1934.]

(a) As a result of attempts to elucidate the life history of *Aporina delafondi*, a parasite adult in the pigeon, Wetzel concludes that a direct life cycle can be excluded. Thus, the embryos show no further development after they are passed in the faeces. Nevertheless, he failed to confirm Railliet's statement that *Agriolimax agrestis* was the intermediary, and 7 other molluscs and insects also proved negative.

B.G.P.

(b) Wetzel has studied macroscopically and microscopically—by serial sections—the pathogenic action of Oesophagostome parasites of pig and sheep and the nature of their food.

The adult worms lie in a viscous slime covering the mucous membrane. The latter has the appearance of a chronic catarrhal inflammation with cell infiltration. The subglandular tissues are slightly enlarged and there is some degeneration of the intestinal glands. These conditions are probably brought about by the action of the secretions poured out by the cephalic glands of the parasites. The latter do not ingest the mucous membrane itself but feed on the slimy products of the inflammatory reactions covering it, in which their heads are embedded.

T.G.

136—Folha Medica.

- a. PÓVOA, H.—“Pathogenia da anemia ancylostomica. Conceito moderno.” xv (7), 73-76. [1934.]

(a) Póvoa summarizes the recent work on hookworm anaemia, especially that of Brazilian workers who have come to regard it as essentially a deficiency anaemia with iron as the chief (if not the sole) deficient factor.

He differs from W. Oswaldo Cruz, who considers that iron deficiency is the primary cause and iron therapy a sufficient remedy [see below, No. 156j], in stressing the importance of small doses of copper salts, copper being an essential catalytic factor in the utilization of iron by the haematopoietic organs. He agrees with Cruz that treatment of the anaemia should normally precede removal of the worms, since the patient is better able to support anthelmintics after the symptoms of ankylostomiasis have been removed.

B.G.P.

137—Geneeskundig Tijdschrift voor Nederlandsch-Indië.

- a. WALANDOUW, E. K.—“Nematoden als bestrijders van anopheles larven.” LXXIV (19), 1219-1224. [1934.]

(a) Walandouw records the occurrence of a nematode parasitic in the larvae of a variety of *Anopheles leucosphyrus*. About 50 specimens were available for study and a brief description of the parasite, which possesses a spear but no teeth in the buccal cavity, is given. The nematodes occurred, as larvae or adults, free in the body cavity but later, as adults, penetrated the thoracic or abdominal walls of the mosquito larva which then died. The worm, after its escape, devoured the dead insect larva. A morphological description of the parasite is promised in a future paper.

J.N.O.

138—Indian Journal of Medical Research.

- a. STEWART, F. H.—“A method of incubating ascaris eggs.” XXII (1), 1. [1934.]
 b. CHOPRA, R. N., GHOSH, N. N. & MUKERJI, A. K.—“Anthelmintic properties of *Vernonia anthelmintica* Willd. (syn. *Serratula anthelmintica*).” XXII (1), 183-186. [1934.]

(a) Stewart describes a method of culturing ascaris eggs in which he spreads them evenly over the inner surface of a test-tube. A little water is left in the bottom of the tube which is then corked, leaving the eggs in a damp atmosphere very suitable for segmentation to proceed.

P.A.C.

(b) Chopra, Ghosh and Mukerji have examined the anthelmintic properties of the seeds of *Vernonia anthelmintica*, a composite plant.

They extracted a bitter substance which is the active anthelmintic. Its action against *Oxyuris vermicularis* and *Ascaris* is marked but does not compare favourably with other compounds now in the British Pharmacopoeia. It has no action against hookworm and cestodes.

P.A.C.

139—Indian Journal of Veterinary Science and Animal Husbandry.

- a. BHALERAO, G. D.—“On the occurrence of *Schistosoma japonicum* Katsurada in India.” IV (2), 148-151. [1934.]

(a) Bhalerao gives a description of, and a discussion on, the half dozen male schistosomes recovered from the intestine of a pig in Calcutta by Dr. Maplestone. These specimens agree with *S. japonicum* except that they are slightly smaller and are tuberculated. The author does not regard these points as of specific importance and concludes that *S. japonicum* exists in India. It may be significant that in 1919 Sewell described a cercaria from Calcutta which he regarded as almost identical with that of *S. japonicum*. The intermediaries were *Indoplanorbis exustus* and *Lymnaea amygdalum*.

B.G.P.

140—Indian Medical Gazette.

- a. MANSON, D.—“A comparative record of anthelmintic treatment with tetrachlorethylene and oil of chenopodium.” LXIX (9), 500-507. [1934.]

(a) Tetrachlorethylene in a dose of 4 c.cm. and tetrachlorethylene 3 c.cm. plus chenopodium oil 1 c.cm. have proved in Manson's experience the two best methods of treatment for hookworm and for mixed helminth infections. For roundworm 4 c.cm. of tetrachlorethylene was slightly less effective than 3 c.cm. of chenopodium oil. Although coolies show a partiality to carbon tetrachloride, tetrachlorethylene is safer and can be administered to alcoholics without adverse effects. There are indications that a treatment consisting of 4 c.cm. tetrachlorethylene combined with 1 c.cm. of oil of chenopodium could be used with impunity and might prove even more effective than any hitherto tried. The author emphasizes the misleading results which are frequently drawn from conclusions based on mere “percentage.”

R.T.L.

141—Indian Veterinary Journal.

- a. ANON.—“Bovine nasal schistosomiasis.” XI (1), 1-4. [1934.]
 b. DORAISWAMY, K. P.—“Nasal granuloma or nasal schistosomiasis in cattle.” XI (1), 25-32. [1934.]
 c. GULATI, R. L.—“*Filaria haemorrhagica* in cattle and its treatment.” XI (1), 32-34. [1934.]

(a) This editorial points out that, now the aetiology of nasal granuloma in cattle is known, efforts should be made to control the disease. Treatment of drinking pools with copper sulphate, which in small quantities is a tonic for cattle, and treatment of the cattle with tartar emetic are suggested. In Madras the disease is commonly regarded as incurable; propaganda is therefore required to refute this view.

B.G.P.

(b) Doraiswamy gives a brief review of the aetiology, symptoms, diagnosis, treatment and prevention of nasal granuloma in cattle. The treatment is a course of 4 to 6 intravenous injections of antimony potassium tartrate, 3 to 4 grains per 100 lb. body weight given at 4-day intervals. Pregnancy and numerous debilitating conditions are contraindications. Tanks and pools used for drinking should be freed from weeds and treated with "weak" solutions of copper sulphate. B.G.P.

(c) Gulati states that filariasis haemorrhagica is fairly common in Indian cattle. The parasite, *Parafilaria multipapillosa*, causes beneath the skin slightly raised nodules which break down to form local haemorrhages. The life history of the parasite is unknown. In severe cases intravenous injections of 100 cc. of 1 per cent. tartar emetic solution are advised, a single injection being usually sufficient. B.G.P.

142—Irish Journal of Medical Science.

- a. HODGMAN, J. H.—"Ankylostomiasis on the gold mines of the Witwatersrand." (Ser. 6), No. 101, 203-222. [1934.]

(a) Hodgman describes the course of ankylostomiasis in the Witwatersrand gold mines, from its origin about 15 years ago, when "dry mining" (with its attendant silicosis) had been replaced by "wet mining," through its worst phase, up to the present day when prophylactic and therapeutic measures have successfully eradicated the disease. A combined treatment with carbon tetrachloride and oil of chenopodium [the author persistently writes "chenapodium"] is now used as being most effective. It was found that rats spread the infection both mechanically and by passing the eggs in a still viable condition through the gut, and that millions of cockroaches transported ova mechanically but not through the gut. Salt was found to be an excellent larvicide. B.G.P.

143—Japanese Journal of Zoology.

- a. YAMAGUTI, S.—"Studies on the helminth fauna of Japan. Part 2, Trematodes of fishes, I." v (3), 249-541. [1934.]
b. YAMAGUTI, S.—"Studies on the helminth fauna of Japan. Part 3, Avian trematodes, II." v (4), 543-583. [1934.]

(a) Continuing his survey of Japanese helminths [see Helm. Abs., II, No. 259a] Yamaguti adds to science 28 new genera of trematodes in fishes, viz., *Squamodiscus* (Gyrodactylidae); *Caudotestis*, *Podocotyloides*, *Helicometroides*, *Diplobulbus*, *Choanostoma*, *Decemtestis*, *Pedunculacetabulum* and *Phyllotrema* (Allocreadiidae); *Biovarium* and *Paracryptogonimus* (Acanthostomidae); *Echinostephanus* (Acantholpidae); *Paraproctotrema* and *Bivesicula* (Monorchidae); *Paralepidophyllum* and *Urinatrema* (Zoogonidae); *Parantorchis*, *Urorchis* and *Paradiscogaster* (Fellodistomidae); *Hypohepaticola*, *Stomachicola*, *Magnacetabulum*, *Tubulovesicula*, *Hysteroleciithoides* and *Prosorchis* (Hemiuridae); *Odhnerium* (Accacoeliidae); *Cephaloporus* (Paramphistomidae); and *Paragyliauchen* (Opistholebetidae). In addition to a large number of known species 94 new forms are named. R.T.L.

(b) To the known avian trematodes of Japan Yamaguti adds the following new species, viz., *Levinseniella squatarolae*, *Philophthalmus nyrocae*, *Ophthalmophagus charadrii*, *Notocotylus parviovatus* and *N. magniovatus*, *Paramonostomum elongatum*, *Echinostoma ralli*, *Acanthoparyphium squatarolae* and *A. marilae*, *Cyathocotyle melanittae*, and the new Strigeidae genera viz., *Uvulifer*, type *U. gracilis* n. sp. and *Pseudodiplostomum*, type *P. cochleariforme* n. sp. R.T.L.

144—Journal of Agricultural Research.

- a. STEINER, G. & BUHRER, E. M.—“*Aphelenchoides xylophilus* n. sp., a nematode associated with blue-stain and other fungi in timber.” XLVIII (10), 949-951. [1934.]

(a) Steiner and Buhner record the occurrence of a nematode *Aphelenchoides xylophilus* n. sp. in pine timber, and give a detailed morphological description of both sexes.

The nematodes were once obtained from wood attacked by blue-stain fungi by soaking and dissection, and on four other occasions appeared in plate cultures of wood fungi. The timber from which these cultures were derived had previously been attacked by beetles, which, it is suggested, acted as carriers for both fungus and nematode parasites while the fungi possibly furnished a food supply for the nematodes. M.J.T.

145—Journal of the American Medical Association.

- a. BROWN, H. W.—“Intestinal parasitic worms in the United States; their diagnosis and treatment.” CIII (9), 651-660. [1934.]

(a) A useful summary is given of the modern methods of diagnosis and treatment for the various helminths of man met with in the United States. The preparation of the patient is in each case emphasized. R.T.L.

146—Journal of the Council for Scientific and Industrial Research.

- a. ROSS, I. C.—“Improved pastures and parasitic infestation of sheep.” VII (3), 131-133. [1934.]

(a) In spite of the increased risk from parasitic infestation Ross states that there is overwhelming evidence that in Australia artificial improvement of pastures by top-dressing, and the introduction of clovers and other legumes and improved grasses constitute a very vital factor in controlling the effects of parasitism and in increasing production. R.T.L.

147—Journal of the Department of Agriculture of South Australia.

- a. JOHNSTON, W. C.—“The occurrence of eelworms on the roots of certain grasses.” XXXVII (6), 705-706. [1934.]

(a) Johnston reports the presence of eelworm cysts on the roots of barley grass, sterile brome and canary grass (*Phalaris canariensis*) in Australia. The infections were not confined to a small area and plants growing as weeds in other crops as well as grass on stubble land were infested. Canary grass showed symptoms similar to those described from infected cereals. M.J.T.

148—Journal of the Egyptian Medical Association.

- a. GIRGES, R.—“Schistosomal secondary anaemia in Egypt. Youth's insidious enemy.” xvii (3), 273-284. [1934.]
- b. DIWANY, M. A. M. et.—“The bilharzial appendix.” xvii (3), 285-295. [1934.]

(a) The chief factors producing *Schistosoma* anaemia are, according to Girges, fever and toxæmia, nephrosis, hæmorrhage, indigestion and diarrhoea, and their effect on the bone marrow, spleen and blood are described.

R.T.L.

(b) Diwany maintains that bilharzial appendix is a separate pathological condition. An appendix affected with bilharzia may be the source of septic absorption and may profoundly alter the motor and secretory functions of the stomach and intestines.

R.T.L.

149—Journal of Infectious Diseases.

- a. BLAIR, J. B. & LANG, O. W.—“Effect of low temperature freezing on the encysted larvae of *Trichinella spiralis*: studies on muscle of rats, guinea-pigs and hogs.” LV (1), 95-104. [1934.]

(a) The effect of modern “quick freeze” processes on the viability of trichinella larvae has been studied by Blair and Lang. Infected pork in commercial quantities was frozen rapidly to a temperature of -17.8°C . (0°F .) and stored at that temperature. Active trichinae occurred in all samples up to 48 hours of storage. The time required for sterilisation was not definitely determined, but the storage period should exceed 48 hours. A number of experiments on rats and guinea-pigs are recorded and it was observed that the effect of cold on the cysts varied with their age.

R.T.L.

150—Journal of Parasitology.

- a. NIGRELLI, R. F. & BREDER, (jr.) C. M.—“The susceptibility and immunity of certain marine fishes to *Epibdella melleni*, a monogenetic trematode.” xx (5), 259-269. [1934.]
- b. BEQUAERT, J. & PILSBRY, H. A.—“The molluscan intermediate host of the blood fluke, *Schistosoma japonicum* Katsurada, in the Philippines. With a note on the genus *Blanfordia*.” xx (5), 280-284. [1934.]
- c. THOMAS, L. J.—“*Cercaria sphaerula* n. sp. from *Helisoma trivolvis* infecting cyclops.” xx (5), 285-290. [1934.]
- d. THOMAS, L. J.—“Further studies on the life cycle of a frog tapeworm *Ophiotaenia saphena* Osler.” xx (5), 291-294. [1934.]
- e. HOPKINS, S. H.—“Studies on *Crepidostomum*. III. *Crepidostomum brevivitellum* n. sp.” xx (5), 295-298. [1934.]
- f. SWALES, W. E. “Research notes. *Rhabdometra odiosa* (Leidy, 1887) Jones, 1929, a cestode parasite of *Pedioectes phasianellus* in Quebec.” xx (5), 313-314. [1934.]

(a) From studies in the New York Aquarium, Nigrelli and Breder find that certain marine fishes develop an immunity to the monogenetic ectoparasite *Epibdella melleni* after a period of susceptibility. The degree of immunity varies greatly between members of the same family. The black angelfish shows inverse age immunity while the moonfish acquires a localized skin immunity.

R.T.L.

(b) In the Philippines the molluscan carrier of *Schistosoma japonicum* is *Blanfordia quadrasi* more recently redescribed under *Oncomelania hydrobiopsis* by Rensch. The generic name *Blanfordia* A. Adams, 1863 has as

synonyms *Oncomelania* Gredler, 1881, *Hemibia* Heude, 1889 and *Katayama* Robson, 1915. The oriental Amnicolidae known to act as intermediate hosts of *S. japonicum*, viz., *B. rosophora* Robson, *B. formosana* Pilsbry & Hirase and *B. quadrasi* Mollendorff are smooth shelled. The ribbed shelled species *hupensis* Gredler may be left in *Oncomelania* as a subgenus. Pilsbry states that Annandale's apparently authoritative paper is crowded with mis-statements.

R.T.L.

(c) A new cystophorous Hemiurid cercaria developing in *Helisoma trivolvis* encysts in *Cyclops vulgaris*. It is named *C. sphaerula* n. sp. by Thomas.

R.T.L.

(d) Thomas has continued his studies (1931) on *Ophiotaenia saphena* by infecting laboratory reared *Cyclops vulgaris* var. *brevispinosus* and feeding them to tadpoles. The young tapeworms not only occurred in the tadpoles but were occasionally found in adult frogs suggesting that these had eaten either infected cyclops or infected tadpoles.

R.T.L.

(e) A new species *Crepidostomum brevivitellum* is recorded from the eel and the burbot. Its occurrence in the eel is regarded by Hopkins as of some biological interest since the genus *Crepidostomum* is confined to freshwater forms whereas most of the trematodes previously reported from European and American eels are marine forms.

R.T.L.

(f) Swales considers *Rhabdometra tomica* Kholodkovsky, 1906 a synonym of *R. odiosa* (Leidy, 1887) Jones, 1929. The wide range of variation in size in several organs is, partly at least, attributable to fixation.

R.T.L.

151—Journal of the Royal Army Medical Corps.

- a. CAWSTON, F. G.—“The control of schistosomiasis in South Africa.” LXIII (2), 110-112. [1934.]

(a) As the distribution of the *Physopsis africana* largely corresponds in South Africa with that of anopheles, Cawston suggests that similar methods of destruction of the snail might be used as are applied for mosquito destruction. Cawston writes in favour of potassium tartrate the use of which has suffered from early prejudice due to impurities in preparation. Intramuscular injections of antimosan or fouadin given over a period of six weeks should immediately be replaced by tartar emetic intravenously should toxic effects be experienced.

R.T.L.

152—Journal of Tropical Medicine and Hygiene.

- a. CAWSTON, F. G.—“Some effects of a prolonged drought on disease-carriers.” xxxvii (13), 195-196. [1934.]
 b. GIRGES, R.—“Pathogenic factors in ascariasis.” xxxvii (14), 209-214. [1934.]
 c. GIRGES, R.—“Pathology and complications of Ascariasis.” xxxvii (19), 296-300. [1934.]

(a) Attention is drawn by Cawston to the favourable opportunity presented by the drought in South Africa to apply measures for the destruction of molluscan carriers of Bilharzia infections of man and stock.

R.T.L.

(b) Girges discusses the pathogenesis of ascariasis under the following heads: 1. Toxic, 2. Irritative and inflammatory, 3. Traumatic, 4. Spoliating,

5. Bacteriferous, 6. Mechanical, and 7. Migrating actions. Under the first head he describes in detail the various properties of the ascaris toxin or toxins, anaphylactic, neurotoxic, haemolytic, etc. Under traumatic action he mentions the injurious effects of their "toothed" lips. B.G.P.

(c) While *Ascaris lumbricoides* in man is usually not of great pathological importance, Girges shows from a survey of the literature that many varied disturbances can be caused by it, particularly when it leaves its normal location. He deals with cases of obstruction, perforation of the intestinal and abdominal walls, and wanderings into the pancreas, liver, and other organs. Some of the rarer locations quoted are pleura, right ventricle of heart, Fallopian tube and bladder. B.G.P.

153—Journal of the Washington Academy of Sciences.

- a. LUCKER, J. T.—"The morphology and development of the preparasitic larvae of *Poteriostomum ratzii*." XXIV (7), 302-310. [1934.]
- b. SCHWARTZ, B. & ALICATA, J. E.—"The development of the Trichostrongyle, *Nippostrongylus muris*, in rats following ingestion of larvae." XXIV (8), 334-338. [1934.]
- c. WEHR, E. E.—"Descriptions of three bird nematodes, including a new genus and a new species." XXIV (8), 341-347. [1934.]
- d. KRULL, W. H.—"*Neodiplostomum pricei* n. sp. a new trematode from a gull, *Larus novaehollandiae*." XXIV (8), 353-356. [1934.]

(a) The literature of the preparasitic development of the small strongyles of horses is summarised and the preparasitic larval stages of *Poteriostomum ratzii* are described. A minimum of 115 hours is required for the development from egg to infective larva. R.T.L.

(b) Yokogawa's work on the development and migration of *Nippostrongylus muris* is confirmed. The larvae do not develop in the intestine to the fourth stage. The third stage larvae develop in the lungs and return to the intestine as fourth stage larvae. Lung migration is essential, irrespective of the path of entry into the definitive host. R.T.L.

(c) From a king rail *Rallus elegans*, *Schistorophus cucullatus* n. sp. is described. It may prove to be synonymous with *S. laciniatus*. A new genus *Stegophorus* is created for *Histiocephalus stellae-polaris* Parona, 1901. A more detailed description of *Yseria coronata* (Molin 1860) Geddoelst, 1919 is given, the generic diagnosis of *Yseria* being slightly modified. R.T.L.

(d) A new species of fluke *Neodiplostomum pricei* has resulted from the feeding of an Australian silver gull, *Larus novaehollandiae*, with the fishes *Fundulus diaphanus diaphanus* and *F. heteroditus macrolepidotus*. The natural definitive host is unknown. R.T.L.

154—Lancet.

- a. ORENSTEIN, A. J.—"Hookworm in gold-mines." CCXXVII (5784), 51. [1934.]
- b. FAKHRY, A.—"The treatment of schistosomiasis and ankylostomiasis with acriflavine." CCXXVII (5786), 162-163. [1934.]
- c. LOW, G. C. & MANSON-BAHR, P. H.—"Further observations on filarial periodicity." CCXXVII (5793), 531-535. [1934.]
- d. DIWANY, M. A. M. el—"Acriflavine for Schistosomiasis." CCXXVII (5793), 571-572. [1934.]
- e. KHALIL, M. & SALAH, M.—"Treatment of schistosomiasis with acridine compounds." CCXXVII (5799), 862-863. [1934.]

(a) Replying to a leader on an article by Hodgman on hookworm in gold-mines [see Helm. Abs., III, No. 142a], Orenstein, C.M.O. of the Rand mines, denies several of Hodgman's statements. Cockroaches were never numerous underground, and rats have failed experimentally to pass viable hookworm ova.

B.G.P.

(b) Fakhry states, in a letter, that he has tested Fisher's acriflavine therapy [see Helm. Abs., III, No. 81a] on 11 cases of *Schistosoma haematobium* and 1 case of *S. mansoni* in Egypt, with no resultant reduction in the number or viability of ova but with some symptomatic benefit. Incidentally, the treatment was found to be effective against hookworm. [Fisher used the drug against a new species of intestinal schistosome occurring in the Belgian Congo.]

B.G.P.

(c) A study of a further case of filarial periodicity emphasises that the phenomenon is in some manner dependent on the habits of the host. The so-called "reversed" periodicity is more accurately to be described as "irregular" periodicity. The minimum number of embryos occurs in the circulation at about 6 p.m. Clayton Lane's theory of rhythmic larval emission by the females is critically discussed and the authors express the belief that the young worms are discharged more or less continuously.

R.T.L.

(d) El Diwany writes, regarding Fisher's acriflavine treatment of schistosomiasis, to point out that medical centres in Egypt are using trypaflavine under the mistaken impression that it is the same drug. Among 100 cases treated with acriflavine he has found over 50 cured, including cases for which tartar emetic was contra-indicated. He gives it either *per os* in water or by rectal enema. The Editor, in an annotation, points out that the two drugs are chemically identical but that commercial samples consist of varying proportions of diamino-methyl-acridinum-chloride and diamino-acridine hydrochlorides respectively, and that the varying proportions may explain the different results hitherto reported.

B.G.P.

(e) Khalil and Salah do not confirm Fisher's statement that schistosomiasis is cured in five days by oral administration of acriflavine. On *S. haematobium* and *S. mansoni* it is without curative effect, moreover *in vitro* dilutions of trypaflavine (acriflavine) have little action on the miracidia or cercariae.

R.T.L.

155—Medicina de los Países Cálidos.

- a. ROBATTO, A. G.—"La filariasis en el Africa occidental. Sobre el tratamiento incurrido de los abscesos filariosicos." VII (7), 331-335. [1934.]
- b. FERNANDEZ, F.—"Parasitismo intestinal y jugo gastrico." VII (7), 336-338. [1934.]

(a) After briefly reviewing the present position of filariasis in West Africa, and particularly the filarial abscesses which the author ascribes to *F. bancrofti* and *Loa loa*, Robatto gives notes on 4 cases of such abscesses successfully treated with "Trisarin P" at Fernando Po. Daily injections of 2 cc. were given over a period of from 6 to 10 days.

B.G.P.

(b) Fernandez investigated the gastric juice and the presence of protozoal and helminthic parasites in 89 cases of diarrhoea at a hospital in

Granada. The cases were classified as hyperchlorhydria, normochlorhydria, hypochlorhydria and achlorhydria but no definite relationship could be discerned between the secretion of the stomach and the presence or absence of parasites. B.G.P.

156—Memorias do Instituto Oswaldo Cruz.

- a. TRAVASSOS, L.—“*Dracunculus fuelleborni*, n. sp., parasito de *Didelphis aurita* Wied.” xxviii (2), 235-237. [1934.]
- b. FREITAS, J. F. T. de—“Sobre as especies do genero *Capillaria* Zeder, 1800, parasitas de morcegos.” xxviii (2), 239-245. [1934.]
- c. LENT, H. & FREITAS, J. F. T. de—“Sobre dois novos generos da sub-familia Trichostrongylinae Leiper, 1908, parasitos de *Tinamus solitarius* Vieill.” xxviii (2), 247-257. [1934.]
- d. FREITAS, J. F. T. de—“*Capillaria rudolphii* n. sp., parasita do intestino delgado de *Tinamus solitarius* Vieill.” xxviii (2), 259-261. [1934.]
- e. FREITAS, J. F. T. de & LENT, H.—“*Capillaria cesarpintoi* n. sp., parasita de *Leimadophis poecilogyrus* (Wied.)” xxviii (2), 263-265. [1934.]
- f. TRAVASSOS, L.—“*Atractis trematophila* n. sp., nematodeo parasito do ceco de um trematodeo Paramphistomoidea.” xxviii (2), 267-269. [1934.]
- g. FREITAS, J. F. T. de & LENT, H.—“*Capillaria amarali* n. sp., parasita de *Liophis miliaris miliaris* (L.)” xxviii (2), 271-272. [1934.]
- h. FREITAS, J. F. T. de & ALMEIDA, J. L. de—“Novo nematodeo parasita de *Gallus domesticus* L., no Brasil: *Capillaria bursata* n. sp.” xxviii (2), 273-275. [1934.]
- i. CRUZ, W. O.—“Metaplasia mieloide do baço na Ancilostomose.” xxviii (2), 287-298. [1934.]
- j. CRUZ, W. O.—“Pathogenesis of anaemia in hookworm disease. Parasite carriers. Relationship between the activity of the helminth and iron deficiency in the genesis of the disease.” xxviii (3), 440-486. [Also in Portuguese, pp. 391-439.] [1934.]

(a) Travassos has described a new species of *Dracunculus* from sub-cutaneous connective tissue of *Didelphis aurita*, *D. fuelleborni* n. sp. The 3 females are from 465 to 490 mm. long and 1.5 mm. in diameter. The 2 males are 27 and 29 mm. long and 0.29 and 0.3 mm. in diameter. The spicules are about equal, 0.38 to 0.42 mm. long and there is a gubernaculum. The papillae are 3 to 4 pre-anal, 1 ad-anal, and 4 to 6 post-anal pairs. B.G.P.

(b) To the 4 existing species of *Capillaria* recorded from bats, de Freitas adds 3 more: *C. pintoii* n. sp., *C. pulchra* n. sp. and *C. angrense* n. sp. all from Brazilian Chiroptera. B.G.P.

(c) Lent and de Freitas describe the following new trichostrongyles from *Tinamus solitarius*: *Lutzinema lutzi* n. g., n. sp., and *Oswaldostrongylus cruzi* n. g., n. sp. They reject Nagaty's new genus *Asymmetricostrongylus* proposed for *Trichostrongylus asymmetricus*, *T. australis* and *T. dissimilis* [see Helm. Abs., 1, No. 182d] on the grounds that the International Rules of Nomenclature, regarding the necessity for a differential diagnosis, were not adhered to. B.G.P.

(d) Teixeira de Freitas describes a species of *Capillaria* from *Tinamus solitarius* as new, since it differed from *C. crypturi*, the only other species from that host which he could find in the literature. He names it *C. rudolphii*. B.G.P.

(e) Teixeira de Freitas and Lent describe *Capillaria cesarpintoi* n. sp. from *Leimadophis poecilogyrus* and differentiate it in a table from *C. murinae* which it resembles. B.G.P.

(f) Travassos describes *Atractis trematophila* n. sp. parasitizing the digestive system of *Amphistoma grande* Diesing, which in turn was parasitizing a chelonian. The nematode probably originated as a parasite of the chelonian, but adults and young stages were actively living in the caeca of the fluke. A new genus, *Nematophila*, is erected for *Amphistoma grande*. B.G.P.

(g) Teixeira de Freitas and Lent describe *Capillaria amarali* n. sp. from *Liophis miliaris*. It resembles *C. murinae* and *C. cesarpintoii*. B.G.P.

(h) Teixeira de Freitas and Lins de Almeida describe *Capillaria bursata* n. sp. from the common fowl in Brazil. It differs from the 6 other species of the genus recorded from the fowl especially in the possession of a prepuce-like arrangement of the posterior end of the male, surrounding the spicule.

B.G.P.

(i) From examination of the liver and spleen in 23 cases of hookworm disease, ranging from 3 to 60 years of age, Cruz found a myeloid metaplasia in the spleen alone in all except 3 cases, which were over 50 years of age. In 14 cases aged between 3 and 14 the spleen weighed more than normal but this was not found in those over 20. Histologically the spleens showed a remarkable proliferation of erythroblasts. The abrupt recovery of anaemia cases after iron therapy is probably due to these reserves of haemoglobin held not only in the bone marrow but also, as the present investigation shows, in the spleen.

B.G.P.

(j) Cruz surveys the various theories that have been put forward to account for hookworm anaemia, culminating in the view that it is essentially due to a deficiency of various factors and his own view that deficiency of iron is the sole factor responsible.

In support he gives extensive data for 5 cases which he observed closely over a period from 5 months to a year. He is convinced that the anaemia develops only after prolonged dietary iron deficiency, sufficient to exhaust the large iron reserves, and that it can be completely cured in the continued presence of a heavy hookworm infestation by massive doses of inorganic iron over a long period (to restore the reserves) followed by a permanent adequacy of iron in the diet. The hookworm is a secondary, though often necessary, factor operating by further depleting iron absorption through haemorrhages and through extensive intestinal lesions. Cruz quotes with approval De Langen's demonstration, that disturbance of the cholesterin/lecithin ratio within the red cell in favour of cholesterin occurs in hookworm anaemia, but he regards this and the reduction in serum proteins as secondary to the iron deficiency. One of his cases shows that haemoglobin was raised from 30 per cent. to 90 per cent., and maintained there for 10 months, in the presence of an infestation giving 40,000 eggs per gm. of faeces. He suggests that the old term Intertropical Hypohaemia would be less misleading than Ankylostomiasis.

B.G.P.

157—Mycologia.

- a. DRECHSLER, C.—“Organs of capture in some fungi preying on nematodes.” xxvi (2), 135-144. [1934.]

(a) Drechsler discusses the nature and functions of the organs of capture in several fungi predacious upon nematodes. He draws a parallel between

Anulospodium nematogenum, recently described by Sherbakoff, *Dactylaria candida* (Nees) Sacc., *Monacrosporium subtile* Oud. and a *Fusarium*-like species of *Monacrosporium*, found by the author, capturing nematodes in single non-constricting loops. The globose cells or bodies of the first two fungi are interpreted as constituting in themselves completed organs of capture, independent of the loops, and designed to take smaller and less vigorous prey. Several references to nematophilous fungi are cited. J.N.O.

158—Nature.

- a. CARROLL, J. & McMAHON, E.—“Hatching experiments on the potato eelworm (*Heterodera schachtii*).” CXXXIV (3376), 66. [1934.]

(a) Carroll and McMahon have found that the root excretions of potatoes growing in recently sterilised soil do not cause the larvae of *Heterodera schachtii* to hatch from the cysts until a period of time has elapsed, this period being longest where the soil has been most recently sterilised. Pot experiments have shown that when hatching is delayed and the plant has time to make some root growth before being attacked the symptoms of potato sickness do not develop.

M.J.T.

159—Norsk Veterinaer-Tidsskrift.

- a. ØKLAND, F.—“Utbredelse og hyppighet av den store leverikte (*Fasciola hepatica* L.) i Norge.” No. 7/9, [Reprint 51 pp.] [1934.]

(a) Økland has investigated the distribution of *Fasciola hepatica* in Norway by means of a questionnaire which was answered by 198 veterinarians. It is shown that liver fluke is, with a few exceptions, limited to the coastal strip, being absent from the fjords and the interior. One unexplained anomaly is its absence from Finmark where *Lymnaea truncatula* is known to be present.

B.G.P.

160—North American Veterinarian.

- a. HALL, M. C.—“Swine sanitation, a battle or a campaign?” xv (7), 46-56. [1934.]
 b. HALL, M. C.—“Fighting Haemonchus.” xv (8), 42-52. [1934.]
 c. SPINDLER, L. A.—“Skin penetration experiments with the infective larvae of *Stephanurus dentatus*.” xv (10), 32-36. [1934.]

(a) The simple story of the helminthology facts which have formed the basis of ascaris control in pig-rearing is here dissembled in military jargon.

R.T.L.

(b) Hall gives details for the control of *Haemonchus*, the whole translated into terms of military strategics, as in so many of his recent papers. In such a form the paper does not lend itself to summarization.

B.G.P.

(c) The question as to whether *Stephanurus dentatus* larvae can penetrate the intact skin of the pig has been investigated by Spindler. He found that no infection occurred when the larvae were applied to the skin in water, but if they were applied in the form of a charcoal or a soil and faeces culture, and alternatively if they were applied in water and the skin area covered with a piece of cloth, then infection resulted. Culture particles or cloth appeared

to be necessary to afford some leverage for penetration. Thus previous contradictory findings are explained by differences in experimental technique. Infection was established by post-mortem examination.

B.G.P.

161—Okayama-Igakki-Zasshi.

- a. HUDIMI, T. & NISHIZAKI, B.—“Ueber den Fibrinogen- und Thrombingerhalt im Blut bei Kaninchenclonorchiasis.” XLVI (5), [in Japanese, German summary p. 972.] [1934].
- b. HASEGAWA, T.—“Ueber die enzystierten Zerkarien in *Pseudorasbora parva*.” XLVI (6), [in Japanese, German summary p. 1397.] [1934].
- c. WATANABE, M.—“Beiträge zur Kenntnis des *Paragonimus westermanni*.” XLVI (7), [in Japanese, German summary pp. 1514-1515.] [1934].

(a) Hudimi and Nishizaki find that, after a normal period in the early stages of the disease, there is a reduction in the fibrinogen and thrombin content of the blood of rabbits infected with *Clonorchis*, leading to delayed coagulation. This reduction is probably ascribable to liver dysfunction, diminution in the blood platelets, and reduced calcium content of the serum.

B.G.P.

(b) Hasegawa has made a detailed study of 15 species of cercariae encysted in or on the fish *Pseudorasbora parva*, from both living preparations and sections, and has further studied the development of the cercariae to adult flukes by means of feeding experiments. The 15 species include *Clonorchis sinensis* and species of *Metagonimus* and *Heterophyes*. [Little can be gleaned from the brief German summary, but there are 44 half-tone illustrations at the end of the Japanese text.]

B.G.P.

(c) In Okayama Watanabe finds that *Paragonimus westermanni* cysts are present in from 92 to 50 per cent. of *Eriocheir japonicus* and in from 7 to 2 per cent. of *Potamon dehaani*. In the former he distinguishes 3 different types of cyst; a thin-walled single-layer cyst containing an immature and often coiled larva, a type with a double-layered wall and a mature larva, and a third abnormal type with a brown cyst wall through which the larva may not be visible. Free cysts may be distributed throughout the crab's body by way of the blood stream.

B.G.P.

162—Parasitology.

- a. CRAM, E. B. & WEHR, E. E.—“The status of species of *Trichostrongylus* of birds.” XXVI (3), 335-339. [1934.]
- b. CRAM, E. B. & CUVILLIER, E.—“Observations on *Trichostrongylus tenuis* infestation in domestic and game birds in the United States.” XXVI (3), 340-345. [1934.]
- c. ROBINSON, V. C.—“A new species of Accacoeliid trematode (*Accacoloelium alveolatum* n. sp.) from the intestine of a sun-fish (*Orthogoriscus mola* Bloch).” XXVI (3), 346-351. [1934.]
- d. CHANDLER, A. C.—“A revision of the genus *Rhadinorhynchus* (Acanthocephala) with descriptions of new genera and species.” XXVI (3), 352-358. [1934.]
- e. TAYLOR, E. L.—“*Fimbriaria fasciolaris* in the proventriculus of a swan associated with bacterial infection and ulcer formation.” XXVI (3), 359-360. [1934.]

(a) From a comparative study of *Trichostrongylus tenuis* and *T. pergracilis* occurring in pheasant, blue goose, Canadian goose, domestic goose, guinea-fowl, chicken, turkey and bob-white quail in the United States, the red grouse and European partridge, Cram and Wehr are convinced that there is only one species and that the morphological differences previously treated of specific value are not constant or significant.

R.T.L.

(b) *Trichostrongylus tenuis* is reported from native domestic geese in Columbia and in pheasants imported from England to Michigan. Adult specimens from different avian hosts showed significant differences in length. Chickens, turkeys and guinea-fowls were successfully infected from "pheasant" cultures but ducks and geese were negative. Development to adult took 7 days. In the early stages of infection diarrhoea occurred with the passage of mucus and blood; later this ceased. The pathological picture was that of acute typhlitis. In the absence of reinfection the infestation died out in about 2 months and the clinical symptoms were of fairly short duration.

R.T.L.

(c) *Accacladocoelium alveolatum* n. sp. differs from the 3 known species in the honey-combed cuticle at the posterior end and in peculiarities of the vitelline apparatus.

R.T.L.

(d) The 10 species of the genus *Rhadinorhynchus* Lühe are split by Chandler into four genera. *Rhadinorhynchus* retains *R. pristis*, of which *R. selkirki* is a synonym, *R. horridus*, *R. tenuicornis* and *R. exilis*. *Nippo-rhynchus* n.g. takes *katsuwonis* as type and only species with possibly *ornatus*. *Gorgorhynchus* n. g. contains *G. gibber* n. sp. as type and *R. medius*. *Aspersentis* Van Cleave contains *A. austrinus* Van Cleave 1929 with *R. wheeleri* and *R. johni*.

R.T.L.

(e) *Fimbriaria fasciolaris* known hitherto as an intestinal parasite is reported by Taylor from the proventriculus. There was heavy infection with extensive ulceration from which large colonies of bipolar staining bacteria were obtained.

R.T.L.

163—Phytopathology.

- a. PERSONS, T. D.—"New or unusual diseases reported or observed in Mississippi in recent years." XXIV (7), 843. [1934.]
- b. STEINER, G.—"Root-knot and other nematodes attacking rice and some associated weeds." XXIV (8), 916-928. [1934.]
- c. TULLIS, E. C.—"The root-knot nematode on rice." XXIV (8), 938-942. [1934.]

(a) Persons records infestations of *Heterodera marioni* on the roots of *Abelia* sp. and *Ginkgo biloba*. Both plants are new hosts for this parasite and *Ginkgo biloba* is the first gymnosperm recorded as a host in the United States.

M.J.T.

(b) Steiner lists a number of nematode species found in the roots of rice plants and weeds, and describes their position within the root and the reaction of the hosts to the parasites.

The nematode fauna of the rice plant is now known to include:—*Tylenchus oryzae*, *T. angustus*, *T. pratensis*, *Heterodera marioni*, *Aphelenchoides parietinus*, *Cephalobus elongatus*, *C. Persegnis*, *Acrobeloides bütschlii* and *A. cornis*. *H. marioni* was found to cause greater damage in rice than in other hosts owing to the inability of the plant to make further growth in the neighbourhood of the parasite. *Tylenchus pratensis* had not previously been known to attack rice. *Echinocloa crusgalli*, a weed growing with the rice was also attacked by *H. marioni*.

M.J.T.

(c) Tullis records the occurrence of *Heterodera marioni* on field-grown rice plants in Arkansas and describes the results of experimental infections of rice seedlings.

Seedlings were found to become infected when grown in soil containing the nematode. Heavier infections occurred in soil submerged to a depth of half an inch than in unsubmerged soil. It is suggested that in the former case a greater supply of oxygen was available in the roots than in the soil. Infected plants were stunted and of poor colour and showed deformations of the roots and in some cases of the subcoronal internode. M.J.T.

164—Plant Disease Reporter.

- a. HASTINGS, R. J. & BOSHER, J. E.—“Remarks concerning the inspection of narcissus plantations for nematode infestation.” XVIII (4), 42-43. [1934.]
- b. CHRISTIE, J. R. & BOYD, O. C.—“*Aphelenchoides fragariae* on Cape Cod strawberries.” XVIII (5), 45-46. [1934.]
- c. STEINER, G. & BUHRER, E. M.—“Observations of interest on nematode diseases of plants.” XVIII (7), 100. [1934.]
- d. NEWHALL, A. G.—“Root-knot nematode population in New York reduced by cold winter.” XVIII (8), 111. [1934.]
- e. COBB, G. S., STEINER, G. & BLANTON, F. S.—“Observations on the significance of weeds as carriers of the bulb or stem nematode in narcissus plantings.” XVIII (10), 127-129. [1934.]
- f. HASTINGS, R. J.—“The early development of dormant colonies of pre-adult *Anguillulina dipsaci* (Kühn, 1858) Gerv. & v. Ben., 1859 in narcissus bulbs in British Columbia and the significance of their resistance to heat.” XVIII (10), 129-130. [1934.]

(a) Hastings and Bosher show the desirability of the continued inspection of narcissus foliage for the presence of “spikkels” caused by the bulb eelworm, *Anguillulina dipsaci*.

They point out that these blister-like swellings on the leaves and the flower stalk continue to appear up to the time the plants have reached their full size. Plants which at an early stage of growth show but few “spikkels” may reveal infection at a later date and the ideal time for inspection is at the full-growth stage or a little later. T.G.

(b) Christie and Boyd have examined diseased strawberry plants from the Cape Cod area and found large numbers of *Aphelenchoides fragariae* on them by late April.

They call attention to the fact that the dwarf symptoms in strawberries associated with this nematode occur mainly during middle or late summer in southern States. This suggested that the worms were checked by moderately cold weather. The fact, however, that pronounced symptoms of disease, with accompanying large numbers of nematodes, have now been found in more northerly regions shows that this view is untenable. T.G.

(c) Steiner and Buhrer list new hosts of certain plant parasitic and allied nematodes with notes on the geographical distribution of the infected material. The records deal with findings of the following nematodes:—*Heterodera marioni*, *Anguillulina dipsaci*, *Aphelenchoides fragariae*, *A. parietinus*, *Neotylenchus abulbosus*, *Hoplolaimus bradyi* and *Paraphelenchus amblyurus*. T.G.

(d) Newhall thinks that the severe cold experienced during last winter may have reduced the population of *Heterodera marioni* in New York soils. Soil, known to be badly infested with *H. marioni*, was taken from a field where it had been exposed all winter (soil temperatures not recorded) and brought

into a greenhouse where it was sown with squash seeds in April. No galls were found on the plant roots after 8 weeks. It is not concluded that winter cold had killed all the Heterodera in soils, especially where these have been blanketed with snow, but it is thought that a considerable reduction in numbers may have been effected. T.G.

(e) Cobb, Steiner and Blanton present evidence of the occurrence of a race of the bulb nematode, *Anguillulina dipsaci*, capable of attacking not only narcissus but also a large number of weeds.

On the bulb plot in question, evidence that eelworm disease was present in the bulbs was found in 1930. In 1932 the plot was closely planted with 15,000 more narcissus bulbs. In 1933 the plot was dug, some of the bulbs were removed and a few hundred others were planted. Weeds were allowed to grow and in June 1934 a survey of the weeds was made for evidence of attack by *A. dipsaci*. 40 species of plants were found on or near the plot and of these, 29 were infected with the parasite. These are listed and amongst them are the names of 21 plants which are new host records for this nematode. A second list is given of uninfected plants 2 of which are known from earlier records as hosts but were not attacked here. A conclusion of practical importance is drawn on the necessity of clean cultivation whilst, on the theoretical side, it is shown how complex is the problem of host specificity and biological races. T.G.

(f) Hastings draws attention to the fact that dormant colonies of pre-adult *Anguillulina dipsaci* occurred at the base of diseased narcissus bulbs less than 2 weeks after lifting which is 4 weeks earlier than normal. He suggests that this may be due to the abnormally early season and thinks it creates uncertainty as to the effectiveness of the usual hot-water treatment of diseased bulbs. He recommends a wider trial of the silver nitrate-potassium cyanide vacuum bath treatment elaborated at the Dominion Laboratory of Plant Pathology, Saanichton, B.C. T.G.

165—Proceedings of the Helminthological Society of Washington.

- a. PRICE, E. W.—“A new trematode from a beaver.” I (1), 1-2. [1934.]
- b. MCINTOSH, A.—“Two new species of trematodes, *Scaphiostomum pancraticum* n. sp. and *Postharmostomum laruei* n. sp., from the chipmunk.” I (1), 2-4. [1934.]
- c. FALLIS, A. M.—“A note on some intermediate hosts of *Echinostoma revolutum* (Froelich).” I (1), 4-5. [1934.]
- d. MUELLER, J. F.—“Note on *Microphallus obstipus* and *M. medius* Van Cleave and Mueller.” I (1), 5. [1934.]
- e. KRULL, W. H.—“Notes on the life history of *Panopisthus pricei* Sinitzin, 1931.” I (1), 5. [1934.]
- f. KRULL, W. H.—“Egg albumen as a mounting medium in the study of living helminths.” I (1), 5-6. [1934.]
- g. HALL, M. C.—“The discharge of eggs from segments of *Thysanosoma actinioides*.” I (1), 6-7. [1934.]
- h. WRIGHT, W. H. & BOZICEVICH, J.—“The occurrence of *Taenia ovis* in dogs at Washington, D.C.” I (1), 7. [1934.]
- i. CROSS, S. X.—“Two mutually limiting parasites of ciscoes.” I (1), 7. [1934.]
- j. MCCOY, O. R.—“The use of hexylresorcinol in the treatment of tapeworm infestation.” I (1), 7. [1934.]

- k. CHITWOOD, B. G. & CHITWOOD, M. B.—“*Daubaylia potomaca*, n. sp., a nematode parasite of snails, with a note on other nemas associated with molluscs.” 1 (1), 8-9. [1934.]
- l. CHITWOOD, B. G. & CHITWOOD, M. B.—“Somatic musculature in nematodes.” 1 (1), 9-10. [1934.]
- m. CHITWOOD, B. G.—“*Capillaria hepatica* from the liver of *Castor canadensis*.” 1 (1), 10. [1934.]
- n. WEHR, E. E. & CHITWOOD, B. G.—“A new nematode from birds.” 1 (1), 10-11. [1934.]
- o. WEHR, E. E.—“A new host for the bird dracunculid, *Avioserpens denticulophasma*.” 1 (1), 11. [1934.]
- p. WEHR, E. E.—“*Rusgumiella brevis* Maplestone, 1931, as a synonym of *Aviculariella alcyona* Wehr, 1931.” 1 (1), 11-12. [1934.]
- q. ALICATA, J. E.—“Observations on the period required for *Ascaris* eggs to reach infectivity.” 1 (1), 12. [1934.]
- r. ALICATA, J. E.—“Life history of *Metastrongylus salmi* and remarks on the eggs of the swine lungworms.” 1 (1), 12-13. [1934.]
- s. ALICATA, J. E.—“New intermediate hosts for some heteroxenous nematodes.” 1 (1), 13. [1934.]
- t. ANDREWS, J. S.—“*Trichostrongylus longispicularis* collected from cattle in the United States.” 1 (1), 13. [1934.]
- u. PORTER, D. A.—“An experimental infestation of *Nippostrongylus muris* in mice.” 1 (1), 13-14. [1934.]
- v. SPINDLER, L. A.—“The effect of ‘burning over’ land on the viability of the larvae of *Stephanurus dentatus*.” 1 (1), 14. [1934.]
- w. CUVILLIER, E.—“Notes on the life history of *Cheilospirura hamulosa*, the chicken gizzard worm.” 1 (1), 14-15. [1934.]
- x. STEINER, G.—“Observations on nematodes parasitic in tubers of the cinnamon-vine (*Dioscorea batatas*).” 1 (1), 15-17. [1934.]
- y. STEINER, G.—“A new variety of the bulb or stem nematode, *Anguillulina dipsaci*, and other variations in this species.” 1 (1), 18-19. [1934.]
- z. THORNE, G.—“The classification of the higher groups of dorylaims.” 1 (1), 19. [1934.]
- za. SHERMAN, W.—“Survival and revival of *Anguillulina dipsaci* from narcissus material.” 1 (1), 19-20. [1934.]
- zb. COURTNEY, W. D. & LATTI, R.—“Some experiments concerning the revival of quiescent *Anguillulina dipsaci*.” 1 (1), 20-21. [1934.]

(a) A new echinostome genus *Stephanoproraoides* related to *Stephanoprora* with the acetabulum at the tip of a long pedicle and without adoral disc or spines is created for *S. lawi*, a new species from *Castor canadensis* in Ontario. R.T.L.

(b) A new species of *Scaphiostomum* from the pancreatic duct of *Tamias striatus lysteri* is named *S. pancreaticum* and differs from *S. illatabile* by the relative distance of the reproductive organs from the posterior end. From the caecum of the same host a new *Postharmostomum*, viz., *P. laruei* is recorded. A key differentiates the 3 known species of the genus. R.T.L.

(c) This paper has already been abstracted [see *Helm. Abs.* III, No. 93a].

(d) As *Microphallus obstipus* and *M. medius* possess a cirrus sac they are transferred to the genus *Maritrema*. R.T.L.

(e) *Zonitoides arboreus* has been infected with *Panopisthus pricei* from a shrew. Cercariae and metacercariae were obtained after 21 days. R.T.L.

(f) Fresh egg albumen is a satisfactory medium for study of miracidia, cercariae and larval parasitic and soil nematodes; it is also excellent for intra-vitam staining. R.T.L.

(g) The eggs of *Thysanosoma actinioides* are shed by dehiscence as the segments dry or by pressure in passing the anal sphincter. R.T.L.

(h) *Taenia ovis* adults have occurred in two dogs killed in Washington, D.C. R.T.L.

(i) When large numbers are present *Neoechinorhynchus* sp. and *Proteocephalus exiguus* are mutually limiting in the ciscoes taken from Silver Lake. R.T.L.

(j) Of 8 cases of *Taenia saginata* treated with hexylresorcinol 6 recurred. The drug failed also in a case of *D. latus*. R.T.L.

(k) A new subfamily Daubayliinae is created for *Daubaylia potomaca* n. sp. a nematode parasitic in snails by Chitwood and Chitwood who give a list of the other nematodes found by them in snails. R.T.L.

(l) There is a general tendency towards the formation of cyclomyarian or polymyarian musculature in the more specialized representatives of the various nematode groups. Polymyarity is but a stage in evolution, not a sign of relationship. R.T.L.

(m) *Capillaria hepatica* is here recorded for the first time in the beaver. R.T.L.

(n) In two birds a new guineaworm has occurred in the mucosa of the mouth and pharynx. *Avioserpens denticulophasma* n. sp. forms the only species of a new genus and subfamily, *Avioserpens* and *Avioserpensinae*. *Avioserpensinae* is closely related to *Dracunculinae*, but differs in the absence of a circumoral cap. R.T.L.

(o) The avian guineaworm *Avioserpens denticulophasma* is reported from the Florida duck *Anas fulvigula*. R.T.L.

(p) *Aviculariella alcyona* Wehr, 1931 is synonymous with *Rusguniella brevis*, Maplestone, 1931, but the genus *Aviculariella* is regarded by Wehr as still valid. R.T.L.

(q) Eggs of *Ascaris suum* containing embryos which had not moulted were not infective to guinea-pigs while those which had moulted were. As a number of ascarid and oxyurid embryos undergo a moult before hatching, Alicata suggests that the moult may be a feature which determines when the egg reaches the infective stage. R.T.L.

(r) Contrary to previous observations Alicata notes that the eggs of swine lungworms are passed in the faeces before hatching. The egg shell is thick and roughened. The earthworms *Lumbricus terrestris* and *Helodrilus caliginosus* var. *trapezoides* are intermediate hosts of *Metastrongylus salmi*. R.T.L.

(s) New insect intermediaries have been determined experimentally by Alicata for *Gongylonema pulchrum*, *Ascarops strongylina* and *Physocephalus sexalatus*. R.T.L.

(t) *Trichostrongylus longispicularis* recorded from sheep in Australia by Gordon, is reported from cattle in Louisiana, U.S.A. R.T.L.

(u) *Nippostrongylus muris* in rats has been transmitted experimentally to young mice in 9 days. R.T.L.

(v) Evidence is given that the burning of vegetation and debris on areas infested with kidney worm larvae does not free the soil from all larvae present. R.T.L.

(w) The intermediate host of *Cheilospirura hamulosa* is the grasshopper *Paroxya clavuliger*. R.T.L.

(x) From Japanese tubers of *Dioscorea batatas* a new *Paraphelenchus* viz., *P. amblyurus* n. sp. is described. R.T.L.

(y) *Anguillulina dipsaci* var. *allocotus* and other variations which are not teratological are discussed in relation to host specificity. R.T.L.

(z) A superfamily Dorylaimoidea is proposed for the families Dorylaimidae De Man, 1876 and Alaimidae Micoletzky, 1922. Of 22 genera 18 are retained with emended diagnoses, viz., in Dorylaimidae, *Dorylaimus*, *Actinolaimus*, *Antholaimus*, *Axonchium*, *Chrysonema*, *Campydora*, *Discolaimus*, *Doryllium*, *Dorylaimellus*, *Leptonchus*, *Longidorus*, *Nygolaimus*, *Oionchus* (?), *Sectonema*, *Tylencholaimus*, *Tylencholaimellus* and *Xiphinema*. The family Alaimidae contains only *Alaimus* and *Bolbinium*. R.T.L.

(za) The preadult larval stage of *Anguillulina dipsaci* survives desiccation and resists hot water and vapour treatments at 118°F. for 2 hours and 120°F. for 3 hours respectively. Heat treatments are more effective if the dormant forms are revived first by previous soaking. R.T.L.

(zb) Neither hot water nor vapour treatment is 100 per cent. lethal to quiescent or dormant forms of *Anguillulina dipsaci* in narcissus bulbs. R.T.L.

166—Proceedings of the Society for Experimental Biology and Medicine.

- a. FAUST, E. C., WELLS, J. W., ADAMS, C. & BEACH, T. D.—“The fecundity of parasitic female strongyloides.” xxxi (9), 1041-1043. [1934.]
- b. HINMAN, E. H., FAUST, E. C. & DeBAKEY, M. E.—“Filarial periodicity in the dog heartworm, *Dirofilaria immitis*, after blood transfusion.” xxxi (9), 1043-1046. [1934.]

(a) The reduction in egg-production and the eventual loss of adult strongyloides females is due probably to encapsulation and phagocytosis not to their loss in the faeces. The number of females recovered after experimental infection with a counted number of larvae often exceeded the number expected. This was due to internal infection by developed larvae penetrating the mucosa of the large intestine. Non-fecund females were found many months after larvae had ceased to occur in the faeces. Symptoms of chronic strongyloidosis may be attributed to post-productive females. The number of larvae in the faeces is no criterion of the degree of infection of the intestinal wall. R.T.L.

(b) By experimental transfusion from a dog heavily parasitized with *Dirofilaria immitis* to a healthy dog, Hinman, Faust and DeBakey obtained blood counts which show that the periodicity cannot be explained on Lane's suggestion of a cyclical parturition and daily destruction of larvae. The majority of the embryos disappeared from the blood of the recipient almost immediately after transfusion. It took almost two weeks for the count of the donor to regain its original level and the usual periodicity to return. R.T.L.

167—Puerto Rico Journal of Public Health and Tropical Medicine.

- a. HALL, M. C.—“Principles and theories of anthelmintic medication.” ix (4), 418-433. [1934.]
- b. FAUST, E. C., HOFFMAN, W. A., JONES, C. A. & JANER, J. L.—“Studies on Schistosomiasis mansoni in Puerto Rico. II. Epidemiology and geographical distribution of Schistosomiasis mansoni in Puerto Rico. 2. A survey of intestinal parasites in endemic schistosomiasis areas in Puerto Rico.” ix (4), 447-471. [1934.]

(a) Hall emphasizes the empirical nature of most of our present knowledge of anthelmintics. Some attempt has been made to relate efficacy to chemical structure in the case of both common anthelmintics and certain related groups such as the terpenes, but the complexity and variability of these substances has vitiated the results. More success has been gained with the simpler chlorinated hydrocarbons, where position of the chlorine atom in the molecule and solubility of the product have been found important factors. He points out the errors which may affect estimations of efficacy based on egg-counts and prefers animal experimentation with counts of worms, both those voided and those found *in situ* at post mortem. He stresses the importance of purgatives, especially salines like Glauber's salt, which possibly counteract absorption of the drug by means of exosmosis into the intestinal lumen. Solvents such as alcohol and (in some cases) fats should be excluded from the diet, and the general condition of the patient should be closely observed in relation to contra-indications. Physicians should know the habits and life-histories of parasites, and also the little understood specificity of anthelmintics.

B.G.P.

(b) An investigation of the Puerto Rican population based on 1,003 individuals, shows *Ascaris* in 9.9 per cent., Hookworm in 33.5 per cent., *Trichuris* in 44.6 per cent., *Strongyloides* in 4.6 per cent., *Enterobius* in 0.4 per cent., *Hymenolepis nana* in 0.1 per cent. and *Schistosoma mansoni* in 12.2 per cent. The distribution of bilharzia is "spotted" and depends on factors essentially independent of those controlling the other parasites occurring in the Island.

R.T.L.

168—Science.

- a. HOBMAIER, A. & HOBMAIER, M.—"The route of infestation and the site of localization of lungworms in molluscs." LXXX (2071), 229. [1934.]

(a) A. and M. Hobmaier have shown that the first stage larvae of certain ruminant lungworms enter the molluscan intermediate host *via* the sole.

They bury themselves in the furrows, pass through the epithelium and enter the muscular connective tissue. 24 hours after invasion, the larvae coil up and begin the formation of a parasitic tubercle. During the next few weeks they moult twice and grow considerably. After the second moult they become infective.

P.A.C.

169—Semana Medica.

- a. NIÑO, F. L.—"Consideraciones clínicas y parasitológicas acerca de una observación de triquinosis humana." XLI (33), 461-488. [1934.]

(a) Niño feels that trichinosis in man may often go undiagnosed owing to the ambiguity of the symptoms. His present report of a case is illustrated with over 50 microphotographs.

B.G.P.

170—South African Medical Journal.

- a. MÖNNIG, H. O.—"Erratic worm parasites in man." VIII (13), 475-476. [1934.]

(a) A useful summary is given by Mönnig of the species of helminths which have been recorded as incidental infections and the occurrence in unusual situations of parasites normally parasitic in man.

R.T.L.

171—Tidsskrift for Planteavl.

- a. ANON.—“Plantesygdomme i Danmark 1933. Oversigt, samlet ved Statens plantepatologiske Forsøg.” [Plant diseases and pests in Denmark 1933.] XL (2), 258-298. [English summary, pp. 299-300.] [1934.]

(a) In Denmark *Heterodera schachtii* attacks on oats, wheat and barley have been very severe and caused great damage. Changes in crop rotation are suggested as the only method of limiting the damage done by this nematode. *Tylenchus dipsaci* is reported to be common as a parasite of white clover in permanent pastures, causing some damage.

M.J.T.

172—Tierärztliche Rundschau.

- a. MEYER, A.—“Versuche mit Tetra-Spezial zur Behandlung der Parasiteninvasion bei Pferden.” XL (26), 431-433. [1934.]

(a) Meyer has tested the effects of “Tetraspezial,” an anthelmintic composed mainly of carbon tetrachloride but forming an emulsion when shaken with water, on 20 horses. The drug was given by nasal sound, in the morning after 16 hours’ fasting, in a dose corresponding to 0.33 gm. CCl_4 per Kg. body weight. Apart from slight interference with the appetite it had no toxic effects, but unfortunately there are no data regarding its anthelmintic properties.

B.G.P.

173—Transactions of the American Microscopical Society.

- a. MUELLER, J. F.—“Two new trematodes from Oneida Lake fishes.” LIII (3), 231-236. [1934.]
- b. HANNUM, C. A. & WILSON, B. E.—“*Uvitellina macroisophaga* n. sp. from the killdeer.” LIII (3), 245-250. [1934.]
- c. ARNOLD, (jr.) J. G.—“Some trematodes of the common bullhead *Ameiurus nebulosus* (Le Sueur).” LIII (3), 267-276. [1934.]
- d. MANTER, H. W.—“*Megapera*, new name for the trematode genus *Eurypera* Manter, 1933.” LIII (3), 293. [1934.]

(a) Mueller here describes two additional species collected in the survey of trematodes of Oneida Lake fishes by Mueller & Van Cleave. The first he calls tentatively *Plagioporus simitsini* n. sp. from the gall bladder of *Catostomus commersonii*. Based on this he gives an emended description of the genus *Plagioporus* Stafford. The second is described as *Creptotrema funduli* n. sp. from *Fundulus diaphanus menona*. Mueller believes the material described by Cooper (1915) as *Allocreadium commune* may very possibly prove to be a mixture of these two species as Cooper describes two distinct types.

E.M.S.

(b) Hannum and Wilson discuss the systematic treatment of the trematode family Cyclocoelidae given by Witenberg (1926) and Joyeux & Baer (1927). They adopt an intermediate position, approving Witenberg’s division into the subfamilies Cyclocoelinae and Typhlocoelinae, but accepting some of the modifications of Joyeux & Baer. They offer a skeleton key to all the genera of the family and the species of *Uvitellina*. The species *U. macroisophaga* n. sp. is from a new host (*Oxyechus vociferus*) and a new locality for this genus.

E.M.S.

(c) Arnold describes three species of trematodes, one of them new, from the common bullhead in New York State. The new form is *Catop-troides hunteri* n. sp. which he compares with the other species of the genus.

He redescribes *Acetodextra amiuri* Pearse 1924, and *Allocreadium halli* Mueller & Van Cleave 1932. For the latter and for *Allocreadium ictaluri* Pearse 1924, he erects the new genus *Polylikithum*, giving a generic definition and differentiating it from the existing genera of the *Allocreadiinae*. E.M.S.

(d) Manter, in a very brief note, offers *Megapera* new name for *Eurypera* Manter 1933, preoccupied. The family name becomes Megaperidae (syn. Euryperidae). Two species are known:—*M. pseudura* and *M. gyrina*. E.M.S.

174—Veterinary Record.

- a. TAYLOR, E. L.—“A method of estimating the number of worms present in the fourth stomach and small intestine of sheep and cattle for the definite diagnosis of parasitic gastritis.” XIV (18), 474-476. [1934.]
- b. PILLERS, A. W. N.—“Notes on parasites in 1933.” XIV (27), 758-760. [1934.]
- c. STEWART, W. L. & PIERCY, S. E.—“Parasitic gastro-enteritis in sheep.” XIV (39), 1165-1169. [1934.]

(a) The great variation in the egg-worm ratio in different instances of infestation in susceptible and resistant sheep has led Taylor to devise a sampling method for obtaining quickly a post mortem approximation to the actual numbers of worms present. R.T.L.

(b) Noel Pillers publishes his annual list of parasites identified by him during the previous year and adds clinical and pathological comments. *Graphidium strigosum* is a cause of severe gastritis in wild rabbits. Adult *Strongylus equinus* occurred in the pancreas of a horse. Tracheal brushes have considerable success in the treatment of *Eucoleus aerophilus* in fur foxes. R.T.L.

(c) A carefully controlled experiment made by Stewart and Piercy showed that although CuSO_4 in a 1 per cent. solution did not exert a markedly specific effect on the common gastro-enteritis of lambs, it undoubtedly influenced recovery favourably and was more efficacious than tetrachlorethylene. Differential leucocytic counts provided the first indication of resolution in the affected sheep. R.T.L.

175—Zeitschrift für Briefftaubenkunde.

- a. WETZEL, R.—“Die Lebensgeschichte des Taubenbandwurmes *Raillietina bonini*.” XLIX (21), 474-475. [1934.]

(a) Wetzel describes the morphology and life history of *Raillietina bonini*, a cestode parasite of the pigeon.

The chief intermediate hosts involved in the life cycle are slugs and snails, species of the genera *Limax*, *Agriolimax* and *Arantia*. He suggests that the easiest way of prevention is by attacking the snail. P.A.C.

176—Zeitschrift für Parasitenkunde.

- a. FREUND, L.—“Helminthenwanderungen. III. Teil: Die Wanderungen der Cestoden von Wirt zu Wirt und im Wirtskörper.” VI (5), 592-602. [1934.]
- b. CHEN, H. T.—“Reactions of *Ctenocephalides felis* to *Dipylidium caninum*.” VI (5), 603-637. [1934.]
- c. MIRZA, M. B.—“*Sciuris palmarum* als ein interessanter Wirt von *Physaloptera* sp.” VI (5), 638-641. [1934.]
- d. HOBMAIER, M.—“Lungenwurmlarven in Mollusken.” VI (5), 642-648. [1934.]
- e. YAMAGUTI, S.—“Über *Orchidasma amphiorchis* (Braun, 1899) Looss 1900.” VI (5), 649-650. [1934.]

(a) Freund gives a conspectus of the "migrations" of cestodes, in the senses both of their transference from host to host in the course of the life history and of the migrations of larvae within the body of the intermediate host or hosts.

In the first section he omits the little-studied groups Cestodaria and Rhynchostomidae, and summarizes the various types of life-cycle met with among the cestodes proper. [Somewhat surprisingly, he takes for granted the absence of any intermediary in the life history of the Anoplocephalids.] He considers that true progenesis, as found in some trematodes, does not exist among the cestodes. Migration within the body of the intermediary usually involves penetration of the gut wall. In invertebrates further development occurs in the body cavity or adjacent organs; in animals with a closed blood-vascular system there is passive transference to the liver, and often thence to the systemic circulation. -

B.G.P.

(b) Chen has studied in detail the development of *Dipylidium caninum* larvae in the flea, *Ctenocephalides felis*, and the reactions of the flea to the infection.

After a preliminary period of mobility the cestode larvae settle down in 4 or 5 days after infection, mainly at the anterior and posterior extremities of the flea larva's body cavity. They grow very slowly until pupation occurs, when growth accelerates and they are redistributed in the body cavity. Mortality of infected fleas is high during the second day after infection, and at pupation, and again during the pupal period. The fleas react to infection slowly, aggregations of leucocytes surrounding the larvae only after the 5th day of infection. Larvae may become completely encapsulated and killed. At pupation the leucocytes abandon their attack on the larvae, returning again about a week after the emergence of the adult flea.

B.G.P.

(c) Mirza has found in India a species of *Physaloptera* which differs slightly from the published descriptions of both *P. varani* and *P. paradoxa*, although it may prove to be identical with one of these. It was found not only in the stomach of *Varanus indicus* but also in that of 4 *Sciurus palmarum*, in one of which encapsulated larvae were also found in the mesentery and liver. In 23 other examples encapsulated larvae alone were found, in various organs and in subcutaneous connective tissue. This suggests that *S. palmarum* serves as an intermediary.

B.G.P.

(d) Following upon the work of the Hobmaiers, during the past few years, on the life-histories of the bursate lungworms, M. Hobmaier here gives a more detailed account of the infestation of molluscs by the larvae. The larvae collect on the foot of the snail, particularly in the furrows, and appear to enter the ducts of the numerous glands which open there. Penetration may occur even during the first day. Snail and larva may remain mutually indifferent, or penetration may be followed by nodule-formation and death of the larva, depending on the species of snail. Selection of a suitable species of snail is probably a chemotactic effect dependent on the mucus produced by the glands. Some larvae remain in the gland cavity, others appear to occupy closely adjacent tissue; in either case a loose connective-tissue nodule is formed around them. The point is that they do not

move far from the surface of the foot and are more akin to ectoparasites than to true endoparasites. The possible phylogenetic significance of this life cycle is discussed.

B.G.P.

(e) Yamaguti redescribes with additional details *Orchidasma amphiorchis* from numerous specimens which he found in the stomach and intestine of *Caretta olivacea* from the Pacific Ocean.

B.G.P.

177—Zeitschrift für Veterinärkunde.

- a. HORNUNG, J.—“Zusammenfassung von 7 nicht veröffentlichten Arbeiten über Wurmbefall und Wurmbekämpfung bei den Pferden.” XLVI (7), 241-254. [1934.]

(a) Hornung here summarizes 7 unpublished papers by 6 authors dealing with the incidence and control of helminths in German Army horses. It is shown that the vast majority of young horses are infested with sclerostomes but that the infestation decreases with increasing age and many heavily infested horses fail to show clinical symptoms. Anthelmintics of the arsenic or antimony groups appear to be useful, but it is necessary to introduce hygienic stabling at the same time; and it is difficult to assess the value of a drug by egg-counting methods based on rectal samples, because such counts show curious fluctuations from day to day and from season to season—fluctuations that require investigation.

B.G.P.

178—Zentralblatt für Bakteriologie. Abteilung I. Originale.

- a. OESTERLIN, M. & KRAINICK, H.—“Orientierende Versuche zur Chemotherapie der Helminthen.” CXXXII (3/4), 222-228. [1934.]

(a) Oesterlin & Krainick have examined, mostly *in vitro*, the effect of upwards of 80 chemical substances, largely dye-stuffs, on *Fasciola*, *Opisthorchis*, schistosome cercariae and adults, *Strongyloides* larvae and *Microfilaria loa*. The helminths were in most cases kept in serum at 38°C. and the substances were used at a concentration of 1 : 50,000. In spite of the claim that helminths, unlike micro-organisms, can be justifiably submitted to chemotherapy tests *in vitro*, the authors admit that the few substances giving good results under such conditions (*e.g.*, cresyl blue) were without effect *in vivo*. Incidentally it was found that potent bactericidal substances such as trypaflavine were but mildly noxious to helminths.

B.G.P.